

### **REMARKS/ARGUMENTS**

The Applicants have carefully considered this application in connection with the Examiner's Action and respectfully request reconsideration of this application in view of the foregoing amendment and the following remarks.

The Applicants originally submitted Claims 1-11. Previously, the Applicants withdrew Claims 9-11 in response to a Restriction Requirement. Currently, the Applicants have amended Claims 1, 4 and 6, and have cancelled Claims 5 and 8. No other claims have been amended, cancelled or added. Accordingly, Claims 1-4 and 6-7 are currently pending in the application.

#### **I. Rejection of Claims 1-3 and 6-7 under 35 U.S.C. §102**

The Examiner has rejected Claims 1-3 and 6-7 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication No. 2004/0067619 to Niimi, *et al.* ("Niimi"). Newly amended independent Claims 1 and 6 currently include the element that the first dielectric layer has a nitrogen concentration of 5 to 20 atomic percent following the second plasma nitridation. Niimi fails to disclose this element.

Therefore, Niimi does not disclose each and every element of the claimed invention and as such, is not an anticipating reference. Because Claims 2-3 and 7 are dependent upon Claims 1 and 6, Niimi also cannot be an anticipating reference for Claims 2-3 and 7. Accordingly, the Applicants respectfully request the Examiner to withdraw the §102 rejection with respect to these Claims.

## **II. Rejection of Claims 4-5 and 8 under 35 U.S.C. §103**

The Examiner has rejected Claims 4-5 and 8 under 35 U.S.C. §103(a) as being unpatentable over Niimi in view of U.S. Patent No. 6,087,236 to Chau, *et al.* ("Chau '236"). As indicated above, newly amended independent Claims 1 and 6 include the element that the first dielectric layer has a nitrogen concentration of 5 to 20 atomic percent following the second plasma nitridation. As established above, Niimi fails to disclose this element. Niimi further fails to suggest this element.

Additionally, according to 35 U.S.C. §103(c), subject matter developed by another person, which qualifies as prior art only under one or more of sections (e), (f), and (g) of 35 U.S.C. §102, shall not preclude patentability where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. Namely, Niimi is being asserted as prior art only under 35 U.S.C. §102(e), and at the time the invention was made both the present invention and Niimi were assigned to Texas Instruments, Inc. Accordingly, the 103(c) exception applies and Niimi may not be used as 35 U.S.C. §103 art. Chau '236 fails to correct the deficiencies of Niimi

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claims 4-5 and 8 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

### **III. Rejection of Claims 1-3 and 6-7 under 35 U.S.C. §103**

The Examiner has rejected Claims 1-3 and 6-7 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,597,046 to Chau ("Chau '046"). Independent Claims 1 and 6 include the element of subjecting both a second dielectric layer and a first dielectric layer having already been subjected to a first plasma nitridation process to a second plasma nitridation process. Contrary to what the Examiner believes, Chau '046 fails to teach or suggest this claimed element.

Chau '046, in contrast to the present invention, is directed to an integrated circuit with multiple gate dielectric structures. (Title). Chau '046 teaches that a first oxynitride layer **106** may be formed over an entire substrate **102**, and thereafter be patterned to expose the substrate **102** in a region. Chau '046 then teaches that the exposed region of the substrate **102** may have a second oxide layer **110** formed thereover. Chau '046 indicated that the second oxide layer **110** may be subjected to a plasma nitridation step to form a second oxynitride layer **111**.

While neither shown, discussed or even hinted to, the Examiner argues that Chau '046 does not expressly disclose that the second plasma process is formed simultaneously with the first dielectric layer, but that Chau '046 teaches that the second nitridation layer is formed as discussed in Fig. 3, and there is no indication showing that the second nitridation layer **111**, for example, is separately formed. What the Examiner is in effect arguing, is that because the drawings of Chau '046 do not outwardly require that the patterned first oxynitride layer **106** is protected when the second oxide layer **110** is converted to the second oxynitride layer **111**, that Chau '046 is suggesting that the patterned first oxynitride layer **106** and the second oxide layer **110** are being subjected to the same second plasma nitridation process.

The Examiner is making huge leaps in this argument, and is wrong for a number of reasons. First, just because Chau '046 fails to detail how its second oxide layer **110** is converted to its second oxynitride layer **111**, does not mean that it is suggesting that its second plasma nitridation process is being subjected to both the first oxynitride layer **106** and the second oxide layer **110**. Basically, an omission is clearly not a suggestion. Second, if the first oxynitride layer **106** of Chau '046 were subjected to the second plasma nitridation, as the Examiner argues, the cross-hatching of the first oxynitride layer **106** in Fig. 8 would be similar to the cross-hatching of the second oxynitride layer **111** in Fig. 8, or at least the cross-hatching of the first oxynitride layer **106** of Fig. 8 would be different from the cross-hatching of the first oxynitride layer **106** in Figures prior to being subjected to the second plasma nitridation process (e.g., Figs. 2-6). Accordingly, Chau '046 also fails to suggest the aforementioned claimed element.

Thus, Chau '046 fails to teach or suggest the invention recited in independent Claims 1 and 6 and their dependent claims, when considered as a whole. The reference must therefore fail to establish a prima facie case of obviousness with respect to these claims. Claims 1-3 and 6-7 are therefore not obvious in view of Chau '046.

In view of the foregoing remarks, the cited reference does not support the Examiner's rejection of Claims 1-3 and 6-7 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

#### **IV. Rejection of Claims 4-5 and 8 under 35 U.S.C. §103**

The Examiner has rejected Claims 4-5 and 8 under 35 U.S.C. §103(a) as being unpatentable over Chau '046 as applied to Claims 1-3 and 6-7 above, and further in view of Chau '236. As indicated above, independent Claims 1 and 6 include the element of subjecting both a second dielectric layer and a first dielectric layer having already been subjected to a first plasma nitridation process to a second plasma nitridation process. As established above, Chau '046 fails to teach or suggest this element.

Chau '236 fails to correct the deficiencies of Chau '046. Namely, the Examiner is offering Chau '236 for the sole proposition that the atomic percentage of nitrogen in the dielectric layers may range from about 5 to about 20 atomic percent. Without even addressing whether Chau '236 teaches or suggests such atomic percentages, a teaching of about 5 to about 20 atomic percent of nitrogen is very different from a teaching or suggestion of subjecting both a second dielectric layer and a first dielectric layer having already been subjected to a first plasma nitridation process to a second plasma nitridation process, as is presently claimed. Accordingly, Chau '236 further fails to teach or suggest such an element.

Thus, Chau '046 alone or in combination with Chau '236 fails to teach or suggest the invention recited in independent Claims 1 and 6 and their dependent claims, when considered as a whole. The references must therefore fail to establish a prima facie case of obviousness with respect to these claims. Claims 1-3 and 6-7 are therefore not obvious in view of the combination.

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claims 1-3 and 6-7 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

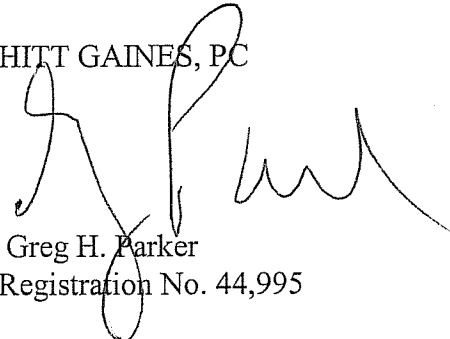
**V. Conclusion**

In view of the foregoing amendment and remarks, the Applicants now see all of the Claims currently pending in this application to be in condition for allowance and therefore earnestly solicit a Notice of Allowance for Claims 1-4 and 6-7.

The Applicants request the Examiner to telephone the undersigned attorney of record at (972) 480-8800 if such would further or expedite the prosecution of the present application. The Commissioner is hereby authorized to charge any fees, credits or overpayments to Deposit Account 20-0668.

Respectfully submitted,

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Dated: August 9, 2006

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